ANNEX: Criteria for the Evaluation of Strength, Activity, Identification, and Location of Selected NGA Warsaw Pact Ground Force Units

1. PURPOSE: The purpose of this annex is to promulgate DIA (DI-3A) methodology and criteria for evaluating information provided during the six month testing period of the collection study. (S)

2. SCOPE: The evaluation system devised by DI-3A analysts specifically for the verification project is designed to maximize credits for each collection discipline (HUMINT, SIGINT, and PHOTINT) while setting sufficient criteria for confidence levels to be established and maintained. (S)

3. SURVEILLANCE EXPECTATIONS: Although each collection discipline will be separately and collectively evaluated, it is expected that collection projects will be held constant so that a valid readout of current levels of exploitation may be made. Each collection discipline will be evaluated using the four elements of strength, activity, identification and location (SAIL). (S)

4. CONFIDENCE LEVELS: The objective appraisal of the four collection disciplines using the elements of SAIL has been accomplished by division of the confidence level into quartiles based on percentages of verification. As conceived in this study, 75-100% confidence = 1, 59-74% =2, 25-49% = 3, 0-24% = 4. For content analysis purposes, these numbers are also equated to rhetorical expressions. The following chart correlates these confidence levels: (S)

Percent of Confidence	Level of Confidence	Verbal Expression
74-100%	1	Confirmed
50-74%	2	Probable
25-49%	3	Possible
0-24%	4	Uncertain

5. METHODOLOGY: Despite the apparent simplicity of evaluating SAIL, there is a vast complexity of subelements which require definition and explanation. The four elements will be detailed and the subelements and methodologies used to evaluate each will be delineated. (C)

a. STRENGTH:

(1) Equipment

Equipment assessments are a primary means of confirming unit strength and assessments for verification purposes are based on a percentage of primary signature items (PSI) of equipment (See Charts A & B). Primary signature items are those items most characteristic of a unit type and, by its quantity, can provide evidence of the echelon of a unit. PSIs are tanks for a tank regiment, AFCs for a motorized rifle regiment, artillery pieces for an Arty Regt, FROGS on transporter-erector-launchers (TELS) for a FROG Battalion, and SCUDS on TELS for a SCUD Brigade. Such primary signature items are prima facie evidence of the strength as well as location of these units. Evidence for a sufficiency of a second order to reach the highest level of confidence is achieved by adding secondary signature items (SSI) to PSIs (See Charts A & B). SIIs

are key items of equipment whose presence is also indicative of unit type, but is second in importance to the PSI. This method can be used when the PSI count falls below the 75% needed to produce a one (1) level of confidence, but is above the 50% figure. SSIs include ZSU-57-2's for a tank regiment, 120 mm mortars for a motorized rifle regiment, prime movers for an Artillery Regiment, and radar, resupply trucks and oxidizer vehicles for FROG and SCUD units. A third order of analysis can be used when either of the first two methods fail to produce the highest level of confidence. Where there are only limited quantities of PSIs and SSIs, a reasonable amount of miscellaneous, but associated equipment, may be added into the equation to upgrade the level of confidence (See Charts A & B). This method involves counting PSIs and SSIs and adding trucks, vans, generators, etc., to arrive at the maximum possible level. (See Charts C and D for MRR and Tank Regiment examples of the strength methodology.) (S)

(2) Personnel

Personnel counts are coincidentally considered in evaluating a unit's strength. They are normally estimated by analysis of reports indicating personnel interacting with equipment (activity) such as in training, but may also include evidence of formations or unit strength reports and statements by repatriates. (S)

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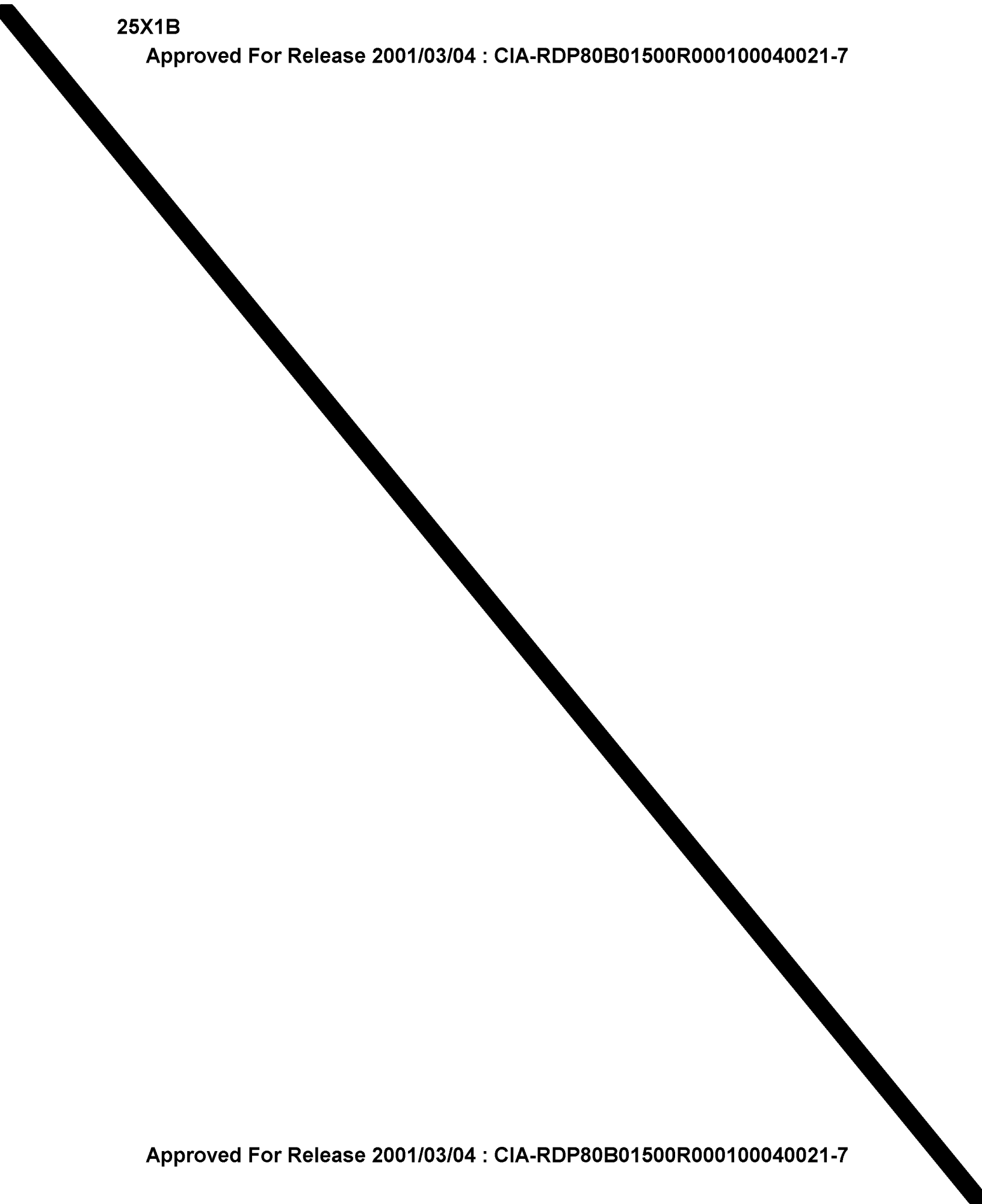

(2) Training

Training may be either in local training areas or in major installations such as the Letzlinger Heide Training Area (LHTA). Local training areas are primarily used for lower echelon training.

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(3) Movement

The traversing of roads by major identifiable units, as well as movement to or from installations and training areas, constitute a third way to measure unit activity. Movement, however, must be associated with the strength, identification and/or location of a unit for it to be verifiable data. The mere sighting of unit elements along roads or on rail lines is insufficient evidence by itself to provide a measure of verification. (S)

(4) Formations

The presence of troops in unit configuration or in sufficient quantity within an installation constitutes a measure of unit activity. Unit or branch insignia aid in determining the type unit in garrisons or locales. This can be combined with other, more descriptive, information to fix the unit in a specific garrison.

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(2) Training Area

(a) Local Area - Most Soviet units employ local training areas; therefore, sightings of unit equipment and activity in these areas are suggestive of unit location within the adjacent installation. This method becomes more complicated when two or more installations use the same training area, however, this is not often the case. (S)

(b) Movement to Training - Although a unit may be in neither an installation nor a training area, if the unit can be associated with a garrison by trackage or turret numbers, some weight can be given to unit location even though it is not physically present or in the act of leaving or entering. (S)

(c) Time of Absence - A more difficult method of determining unit location is to correlate collection disciplines and measure time of absence from a garrison and time in a training area. 25X1B This can be done by noting exact days of absence and correlating it with data of training activity when combined with [redacted] and technical reports. (S)

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7. CONCLUSIONS:

Although the emphasis in this background paper is on quantifiable techniques, the key to assessing a level of confidence rests with the analyst. As in any sampling technique, someone ultimately makes a determination of data falling within predetermined bounds. Obviously, many factors influence an analyst's judgment and only some of those factors are quantifiable. [redacted] for example, is not quantifiable, but rather, is an absolute condition. (S)

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The purpose, however, of this paper has been to set up artificial bounds for analysts to apply similar techniques in deriving data and for standardizing the approaches to filling out the SAIL monitoring form. Each analyst applies methodologies in his own way for order of battle updates. That is because each country and even areas within countries differ as to observable or empirical data that can be derived by the collection disciplines. However, a standard methodology is desirable in the achievement of an objective approach to the monitoring (SAIL) study. (S)

STRENGTH AS MEASURED BY EQUIPMENT (S)
CODES

CHART A

CODE 1 (75% - 100% Confidence Level)

Category A: PSI = 75% - 100%

B: PSI + SSI = 50% (PSI) + 75% (SSI)

C: PSI + SSI + ME = 50% + 60% + 75%

CODE 2 (50% - 74% Confidence Level)

Category A: PSI = 50% - 74%

B: PSI + SSI = 25% + 75%

C: PSI + SSI + ME = 25% + 75% + 75%

CODE 3 (25% - 49% Confidence Level)

Category A: PSI = 25% - 49%

B: PSI + SSI = 10% + 75%

C: PSI + SSI + ME = 10% + 75% + 75%

CODE 4

Category A: PSI = + 25%

B: PSI + SSI = + 10% and + 75%

C: PSI + SSI + ME = + 10% and + 75% and + 75%

PSI = Primary Signature Item of Equipment

SSI = Secondary Signature Item of Equipment

ME = Miscellaneous Associated Equipment

STRENGTH (S)

CHART B

Primary Assessment Method is Equipment

Primary Signature Item (PSI)

	1	2	3	4
1. Tank Regt - Tanks	.75	.50	.25	+ .25
2. MRR - APC	.75	.50	.25	+ .25
3. ARTY Bde - ARTY Pieces	.75	.50	.25	+ .25
4. SCUD Bde - SCUDs on TELS	.75	.50	.25	+ .25
5. FROG Bn - FROGS on TELS	.75	.50	.25	+ .25

Secondary Signature Items (SSI) + ½ (PSI)

	1	2	3	4
1. TR-(M35A2/57-2s)	.50+.75	.25+.75	.10+.75	+ .10+(½).75
2. MRR - 120 mm Morter	.50+.75	.25+.75	.10+.75	+ .10+(½).75
3. ARTY Bde - Prime Movers	.50+.75	.25+.75	.10+.75	+ .10+(½).75
4. SCUD Bde - Resupply and Oxidizer Vehicles	.50+.75	.25+.75	.10+.75	+ .10+(½).75
5. FROG Bn - Resupply Missile Vehicles	.50+.75	.25+.75	.10+.75	+ .10+(½).75

PSI + SSI

Miscellaneous Equipment + (SSI) + (PSI)

	1	2	3	4
1. TR- (Trucks,etc.) PSI + SSI + ME	.50+.60+.75	.25+.75+.75	.10+.75+.75	+ .10+ + .75+ + .75
2. MPR-(Trucks,etc.)	.50+.50+.75	.25+.75+.75	.10+.75+.75	+ .10+ + .75+ + .75
3. ARTY Bde - (Trucks,etc.)	.50+.60+.75	.25+.75+.75	.10+.75+.75	+ .10+ + .75+ + .75
4. SCUD Bde- (Trucks,etc.)	.50+.60+.75	.25+.75+.75	.10+.75+.75	+ .10+ + .75+ + .75
5. FROG Bn- (Trucks, etc.)	.50+.60+.75	.25+.75+.75	.10+.75+.75	+ .10+ + .75+ + .75

PSI+SSI+ME

TANK REGIMENT EXAMPLE OF EQUIPMENT STRENGTH
METHODOLOGY & CRITERIA

CHART C

To obtain a Code 1 level of confidence (75%-100%), the most direct approach is to take a percentage count of medium tanks (PSI) in the unit and if the figure represents a minimum of 75% of the normal estimated TOE figure, then that degree of confidence will be reflected by placing a figure "1" in the scoring column under strength. Thus:

PSI = .75 x 95 tanks = 71 tanks

71 would be the minimum tank count level needed to score a confidence level of 1.

Given a mixture of secondary signature items with the primary items, a confidence level of 1 could be reached with less PSIs. Thus:

PSI + SSI = (.50 x 95 tanks) + (.75 x 4 ZSU 57-2s) =

48 tanks + 3 ZSU 57-2s = 1

The third way to reach the confidence level of 2 would be to take primary and secondary signature items and add in miscellaneous equipment. Thus:

PSI + SSI + ME = (.50 x 95 tanks) + (.60 x 4 ZSU 57-2s)

+ (.75 x ME)

CHART D

CODE 1 :

Category A: PSI = .75 x 95 APCs = 71 APCs

B: PSI + SSI = .50 x 92 APCs + .75 x 18 (120 mm) Mortars = 46 APCs + 14 (120 mm) Mortars.

C: PSI + SSI + ME = .50 x 95 APCs + .60 x 18 (120 mm) Mortars + .75 x 370 (Major items) = 48 APCs + 11 (120 mm) Mortars + 250 Major items of miscellaneous equipment

THE FOLLOWING CHART SHOWS LEVELS OF PERSONNEL NEEDED TO BE CROSS TO EQUIPMENT COUNTS TO ACHIEVE THE VARIOUS LEVELS OF CONFIDENCE (S)

CHART E

Percentage Range of Personnel		Percent of Equipment		Confidence Level
80 - 100	+	50	=	1
60 - 79	+	50	=	2
30 - 59	+	25 - 50	=	3
∔ 30	+	∔ 25	=	4

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[redacted]

AN ACTIVITY CHART IS PRESENTED BELOW. THIS CHART PROVIDES ESTIMATES OF PERCENTAGES OF BASES THAT GO INTO AN ANALYSTS JUDGMENT OF THE LEVEL OF COMBAT BASE IN UNIT ACTIVITY (S)

CHART G

ACTIVITY	Approximate Percentage of Analyst Judgment
Terrain Analysis	20-40%
Training	20-75%
Movement To/From Installation	20-75%
Personnel In Installation	20-50%
Vehicle Repair & Installation Maintenance	20-40%
Construction	20-40%
	10-25%

Any percentage combination can = 1, 2, 3, 4

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